

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

Claim 1 (currently amended): A composition for use in powder metallurgy comprising a mixture of a metal powder, graphite powder, and a solid lubricant system comprising a guanidine material distributed throughout said mixture, at least a portion of said solid lubricant system converting to a liquid phase upon application of pressure to said composition.

Claim 2 (canceled)

Claim 3 (original): A composition as set forth in claim 1 comprising from about 0.10 to about 0.50 percent by weight of said lubricant system.

Claim 4 (canceled)

Claim 5 (currently amended): A composition as set forth in claim 1 wherein said lubricant system ~~comprises~~ includes a fatty acid material and a guanidine material.

Claim 6 (canceled)

Claim 7 (currently amended): A composition as set forth in claim 1 wherein said lubricant system ~~comprises~~ includes a synthetic wax and a fatty acid ester.

Claim 8 (original): A composition as set forth in claim 1 wherein said lubricant system includes an amide wax.

Claim 9 (previously presented): A composition as set forth in claim 5 wherein said fatty acid material comprises stearic acid.

Claim 10 (currently amended): A composition as set forth in claim 6 1 wherein said guanidine material comprises guanidine stearate.

Claim 11 (currently amended): A composition as set forth in claim 6 1 wherein said guanidine material comprises guanidine ethyl-hexanoate.

Claim 12 (currently amended): A composition as set forth in claim 6 1 wherein said guanidine material comprises a mixture of guanidine stearate and guanidine ethyl-hexanoate.

Claim 13 (currently amended): A solid lubricant system for use in the production of metal powder compacted parts, said solid lubricant system including a guanidine material and a graphite powder, said lubricant system being capable of forming a liquid phase upon application of pressure.

Claim 14 (previously presented): A solid lubricant system as set forth in claim 13 wherein said lubricant system is attracted to said graphite powder.

Claim 15 (canceled)

Claim 16 (previously presented): A solid lubricant system as set forth in claim 13 that displays a viscosity of from about 1000 to about 6000 poise at a shear rate of 1000/second.

Claim 17 (currently amended): A method of forming a metal part with improved density comprising the steps of: (i) providing a composition comprising a mixture of metal powder, a graphite powder, and a solid lubricant system comprising a guanidine material; (ii) placing said composition in a mold having a cavity formed therein formed by mold walls; (iii) applying pressure to said composition contained within said cavity to form a green part and convert at least a portion of said solid lubricant system to a liquid lubricant; (iv) removing said green part from said mold; and (v) sintering said green part and forming a finished part.

Claim 18 (previously presented): A method as set forth in claim 17 wherein during said step (iii) said graphite powder migrates to any pores within said green part.

Claim 19 (previously presented): A method as set forth in claim 17 wherein during said step (iii) said graphite powder migrates to the mold wall.

Claim 20 (previously presented): A method as set forth in claim 18 wherein during said step (v) said graphite powder promotes liquid phase sintering at said pores.

Claim 21 (canceled)

Claim 22 (currently amended): A master mix for use in powder metallurgy comprising metal powder, a graphite powder, and at least 1% by weight of a lubricant system comprising a guanidine material, said lubricant system being capable of converting at least in part to a liquid phase upon subsequent let down of said master mix and pressing of said let down master mix.

Claim 23 (new): A method of forming a metal part with improved density comprising the steps of: (i) providing a composition comprising a mixture of metal powder, a polar powder comprising graphite powder, and a solid lubricant system comprising a guanidine material; (ii) placing said composition in a mold having a cavity formed therein formed by mold walls; (iii) applying pressure, at a temperature no greater than about 140°F, to said composition contained within said cavity to form a green part and convert at least a portion of said solid lubricant system to a liquid lubricant; (iv) removing said green part from said mold; and (v) sintering said green part and forming a finished part.